

REMARKS

Claims 1-25 are now pending in the present application. Claims 1-3 and 6 are drawn to the elected invention identified by the examiner as Group I. Claims 4, 5 and 7-12 are directed to non-elected invention and may be canceled by the examiner upon the allowance of the claims directed to the elected invention. Claims 13 to 25 are newly presented. Claim 1 has been amended to recite "said chemical conversion coating agent has a pH of 1.5 to 6.5". The amendment to claim 1 finds support at page 14, lines 24-26 of the specification. Claims 14, 23, 24 and 25 find support at page 15, lines 13-16 of the specification. Claims 15, 20, 21 and 22 find support at page 16, lines 1-9 of the specification. Claim 16 finds support at page 16, lines 17-22 of the specification. The amendments to the claims and new claims do not introduce any new matter.

Claims 1-3 and 6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U. S. Patent Application Publication No. US2003/0209290 to Heimann et al. in view of U.S. Patent No. 6,203,854 to Affinito. The cited references fail to render obvious claims 1, 3 and 6. The Examiner stated that Heimann does not explicitly teach the claimed 1-5000 ppm of silane coupling agent.

The present invention relates to a chemical conversion coating agent that comprises at least one kind selected from the group consisting of zirconium, titanium and hafnium; and a specific metal ion and having a pH that is acidic.

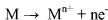
Heimann et al. suggest a substantially phosphate free metal surface treatment composition wherein the composition is a basic solution having a pH of 9-13. See paragraph [0033] thereof. The chemical conversion coating agent of the present invention has pH of 1.6 to 6.5 and is therefore acidic. Therefore the pH of the coating agent of the present invention differs from the pH suggested by Heimann et al.

The difference in pH is important from a technical viewpoint. The composition of Heimann et al. has a basic pH because it is used in electrodeposition. On the other hand, the composition of the present invention can be applied by dipping or spraying method and therefore does not require a current. The reactivity of a base to the metal surface is entirely different than

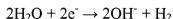
that of an acid. Therefore the basic composition of Heimann et al. could not be used in an application employing dipping or spraying.

Precipitation system of zirconium oxide, a main component of a chemical conversion coat formed by the chemical agent of the present invention is indicated as follows:

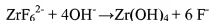
1. etching steel with acid.



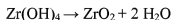
2. rising pH of interface



3. precipitation of zirconium hydroxide



4. formation of zirconium oxide by dehydration and condensation



In sum, in the present invention, the above metal melting can occur to form a chemical conversion coat in an acidic condition. On the other hand, the metal melting reaction does not occur in a basic condition like Heiman.

Affinito suggests a treatment solution for applying to the surface of a metal substrate, which comprises a partially hydrolyzed aminosilane and a fluorine-containing inorganic compound. However, Affinito fails to overcome the above discussed deficiencies of Heimann et al. with respect to rendering obvious the present invention. Accordingly, the present invention differs significantly from and is not obvious over the cited references.

Claims 1 and 2 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,449,414 to Dolan in view of Affinito. The cited references fail to render obvious claims 1 and 2. Dolan suggests a substantially phosphate free conversion coating composition comprising a complex of Ti, Zr, Hf and Si and mixtures thereof and specific cation elements. However, Dolan discloses that the compositions should be free from various ingredients such as silica and silicates that do not contain at least four atoms of fluorine per atom of silicon and the like. See column 3, line 63-col. 4, line 7 thereof. This description would be interpreted by those

skilled in the art as precluding the addition of other components to the composition. On the other hand, as discussed above, Affinito's composition comprises a silane compound such as an aminosilane. Therefore, no motive exists to combine Dolan and Affinito.

Claims 3 and 6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Dolan in view of Affinito and further in view of U.S. Patent No. 3,682,713 to Ries. The cited references fail to render obvious claims 3 and 6. Ries was relied upon for a disclosure of employing 0.5-30g/l of accelerators. Ries suggest a substantially phosphate free coating composition comprising complex fluorides of Ti and/or Zr, and water soluble salts of Zn and/or Co. However, as discussed above, there is no motive to combine Dolan and Affinito. Accordingly, there is no motive to combine Dolan and Affinito and Ries. Therefore the present invention is not obvious from Dolan, Affinito and Ries.

The mere fact that cited art may be modified in the manner suggested in the Office Action does not make this modification obvious, unless the cited art suggest the desirability of the modification. No such suggestion appears in the cited art in this matter. The Examiner's attention is kindly directed to *KSR Int'l Co. v. Teleflex, Inc.*, 127 S.Ct. 1727; 82 USPQ2d 1385 (2007), *In re Lee* 61 USPQ2d 1430 (Fed. Cir. 2002) *In re Dembiczak et al.* 50 USPQ2d. 1614 (Fed. Cir. 1999), *In re Gordon*, 221 USPQ 1125 (Fed. Cir. 1984), *In re Laskowski*, 10 USPQ2d. 1397 (Fed. Cir. 1989) and *In re Fritch*, 23, USPQ2d. 1780 (Fed. Cir. 1992).

Also, the cited art lacks the necessary direction or incentive to those or ordinary skill in the art to render a rejection under 35 U.S.C. 103 sustainable. The cited art fails to provide the degree of predictability of success of achieving the properties attainable by the present invention needed to sustain a rejection under 35 U.S.C. 103. See *KSR Int'l Co. v. Teleflex, Inc.*, 127 S.Ct. 1727; 82 USPQ2d 1385 (2007), *Diversitech Corp. v. Century Steps, Inc.*, 7 USPQ2d 1315 (Fed. Cir. 1988), *In re Mercier*, 185 USPQ 774 (CCPA 1975) and *In re Naylor*, 152 USPQ 106 (CCPA 1966).

Moreover, the properties or results of the subject matter and improvements which are disclosed in the specification are to be considered when evaluating the question of obviousness under 35 U.S.C. 103. See *KSR Int'l Co. v. Teleflex, Inc.*, 127 S.Ct. 1727; 82 USPQ2d 1385 (2007), *Gillette Co. v. S.C. Johnson & Son, Inc.*, 16 USPQ2d. 1923 (Fed. Cir. 1990), *In re*

Antonie, 195, USPQ 6 (CCPA 1977), *In re Estes*, 164 USPQ (CCPA 1970), and *In re Papesch*, 137 USPQ 43 (CCPA 1963).

No property can be ignored in determining patentability and comparing the claimed invention to the cited art. Along these lines, see *In re Papesch*, supra, *In re Burt et al*, 148 USPQ 548 (CCPA 1966), *In re Ward*, 141 USPQ 227 (CCPA 1964, and *In re Cescon*, 177 USPQ 264 (CCPA 1973).

In view of the above amendment, applicant believes the pending application is in condition for allowance.

In the event that the Examiner believes that another interview would serve to advance the prosecution of this application, the undersigned is available at the number noted below.

Please charge any fees due with this response to our Deposit Account No. 22-0185, under Order No. 21581-00312-US from which the undersigned is authorized to draw.

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Respectfully submitted,

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